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(54) **A method for detecting the home area in a mobile station and a mobile station**

(57) The invention relates to a method for detecting a home area in a mobile station, and to a mobile station realizing the invention. According to the invention the home area is detected in the mobile station by comparing (8) data received by the mobile station from the base stations of a cellular network with predetermined (1 to 6) home area data stored in the mobile station. The home area data is determined (1 to 6) based on preferably all of the following data: a) a mobile country code (MCC), b) a mobile network code (MNC), c) a location area code (LAC) and a related cell identity (CI) for all broadcasting channels (BCCH) which the base station is able to receive, d) received signal strengths (RSS) for all broadcasting channels BCCH, e) distances from all base stations (BTS) on the broadcasting channels BCCH, and f) timing advances (TA).

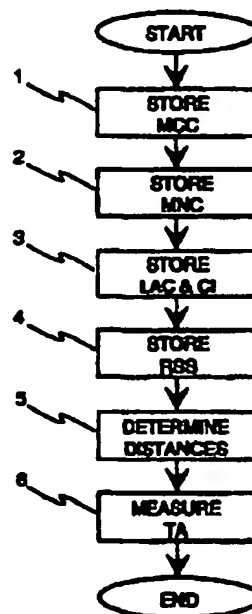


FIGURE 1

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European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 11 5761

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (FIELD)
X	US 5 471 643 A (MARUI KUNYOSHI) 28 November 1995 (1995-11-28) * column 2, line 25 - line 41 * * column 3, line 24 - line 41 * * column 6, line 57 - column 7, line 14 * * column 7, line 54 - column 8, line 14 *	1-10	H04Q7/32 H04Q7/22 H04Q7/38
X	US 5 444 765 A (HATTORI KIVOSHI ET AL) 22 August 1995 (1995-08-22) * column 4, line 43 - line 64 * * column 5, line 4 - line 18 *	1-10	
			TECHNICAL FIELD SEARCHED (FIELD)
			H04Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 January 2000	Examiner Heinrich, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : number of the same patent family, corresponding document			

EPO FORM 1500 (04/97)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 98 11 5761

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-01-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5471643 A	28-11-1995	JP 3226129 A	07-10-1991
		CA 2035306 C	25-07-1995
US 5444765 A	22-08-1995	NONE	

EPO FORM P/2003

For more details about this annex : see Official Journal of the European Patent Office, No. 12/92

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PAT 56558W-90	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, Item 5 below.
International application No. PCT/CA2004/000293	International filing date (day/month/year) 27/02/2004	(Earliest) Priority Date (day/month/year) 13/11/2003	
Applicant RESEARCH IN MOTION LIMITED			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 6

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No

/CA2004/000293

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04Q7/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX, INSPEC, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/069661 A (ERICSSON TELEFON AB L M ;HEDBERG ANNE-LOTT (SE); JOHANNESSON REGIN) 6 September 2002 (2002-09-06)	1-6
Y	abstract page 1, line 14 - line 22 page 2, line 22 - line 28 page 3, line 21 - page 4, line 12 page 5, line 21 - line 26 page 6, line 18 - page 7, line 3 figures 1,4 ----- -/-	7-25

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"A" document member of the same patent family

Date of the actual completion of the international search

12 July 2004

Date of mailing of the international search report

23/07/2004

Name and mailing address of the ISA

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Authorized officer

Rosenauer, H

INTERNATIONAL SEARCH REPORT

International Application No.

/CA2004/000293

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 734 980 A (HOOPER JEFF DUWAYNE ET AL) 31 March 1998 (1998-03-31)	1-6
Y	column 1, line 6 - line 10 column 3, line 53 - line 62 column 4, line 29 - column 5, line 10 column 6, line 41 - line 65 column 7, line 15 - line 64 column 8, line 13 - column 46 column 10, line 47 - column 11, line 49 figures 1,2	7-25
Y	EP 0 915 631 A (NOKIA MOBILE PHONES LTD) 12 May 1999 (1999-05-12) abstract column 1, line 20 - line 26 column 2, line 9 - line 19 column 3, line 19 - line 46 column 5, line 19 - line 37 column 6, line 5 - line 9 figure 3	7-25
A	3GPP: "3rd Generation Partnership Project; Technical Specification Group Core Network; NAS Functions related to Mobile Station (MS) in idle mode (Release 5)" 3GPP TS 23.122 V5.3.0 (2003-09), 'Online! September 2003 (2003-09), page 1-33, XP002285860 Retrieved from the Internet: URL: http://www.3gpp.org/ftp/Specs/archive/23_series/23.122/23122-530.zip 'retrieved on 2004-06-24! page 14, paragraph 4.4.3.1.1 - page 15, paragraph 4.4.3.1.1 page 17, paragraph 4.4.3.3	1-25

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

/CA2004/000293

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02069661	A	06-09-2002	US 2002119774 A1	29-08-2002
			WO 02069661 A2	06-09-2002
			EP 1364550 A2	26-11-2003
US 5734980	A	31-03-1998	NONE	
EP 0915631	A	12-05-1999	FI 973456 A	23-02-1999
			AU 8864998 A	16-03-1999
			CN 1268278 T	27-09-2000
			DE 69815023 D1	03-07-2003
			DE 69815023 T2	01-04-2004
			EP 0915631 A2	12-05-1999
			WO 9911085 A1	04-03-1999
			JP 2001514475 T	11-09-2001
			US 6526267 B1	25-02-2003